

REMARKS/ARGUMENTS

Claims 1 - 75 have been cancelled without prejudice.

New claims 76 - 134 are pending in the application.

The specification has been amended to correct the reference numeral matter.

The claims have been amended to correct the 35 U.S.C. §112 objections.

Applicants affirm the election of claims 1 - 35 and 43 - 68 (now new claims 76 - 134) and reserves the right to file one or more divisional applications directed to the subject matter of claims 36 - 42 and 69 - 75.

Traversal of the Prior Art Rejections Under 35 U.S.C. §103(a)

For at-speed testing, the application proposed using a delay test technique by applying two or more capture clocks, each controlling one clock domain and comprising two or more capture clock pulses (without any shift clock pulse), in a sequential order (ordered sequence), during a capture operation. This delay test technique is, in general, called "broadside" or "double-capture" when each capture clock contains at least two capture clock pulses and does not contain any shift clock pulse. This is set out in clause (b) of claim 76 as follows:

- (b) applying an ordered sequence of capture clocks to all said scan cells within said N clock domains, the ordered sequence of capture clocks comprising at least two said capture clock pulses from two or more selected capture clocks placed in a sequential order, wherein each said selected capture clock

must contain at least one said capture clock pulse
and does not contain any said shift clock pulse,
during a capture operation; and

The cited references, US 6,442,722 (2001), referred to as Nadeau-Dostiel, and US 5,349,587 (1994), referred to as Nadeau-Dostie2, use a delay test technique called "skewed-load". During a capture operation, a launch (or shift) clock pulse followed by a capture clock pulse is triggered. The launch (or shift) clock pulse is triggered when each local clock-domain scan enable (SE) signal is "high" (in scan shift mode), while the capture clock pulse is triggered when the SE signal is "low" (in capture or normal mode). This is completely different from the "broadside" approach as in the present application where two capture clock pulses are both triggered in normal or functional mode when the SE signal stays "low". This means that:

- (1) In FIG. 10 of the present application, each of the 4 capture clocks (CD1, CD2, CD3 and CD4) does not contain any shift clock pulse; while in FIG. 4 of Nadeau-Dostie2, each of the 3 capture clocks (CD1, CK2 and CK3) contains one shift clock pulse triggered at A1, A2 or A3, and one capture clock pulse triggered at B1, B2 or B3.
- (2) In the instant application, all local SE signals can directly connected to a global scan enable (GSE) signal and these SE signals can all operate at a reduced clock speed. The cited two references, however, must operate each local SE signal at its rated clock speed.

Please see the differences between "one GSE" during the "capture cycle" in FIG. 10 in the present application, and the "3 mode selected signals (MS1, MS2 and MS3)", each having different timing waveforms in FIG. 4 of Nadeau-Dostie2.

- (3) In order to trigger B1, B2 and B3 simultaneously as described in Nadeau-Dostie2, the frequencies of the three clocks, CK1, CK2 and CK3, must be in multiple integers, e.g., operating at 40 MHz, 20MHz and 10MHz, respectively. In the present application, however, these three clocks can operate in any asynchronous frequencies, such as 40MHz, 23MHz and 17MHz.

Clearly, the Nadeau-Dostie references 1 and 2 do not teach or suggest the broadside approach utilized in the present application. The present application, as noted above, can actually use one global scan enable (GSE) signal to drive all local scan enable signals, while the cited two references cannot.

In view of the above, further and favorable reconsideration is respectfully requested.

Respectfully submitted,



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Date: October 21, 2004

In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.